

**Written Testimony of Susan Eastwood
Coalition for a Safe and Healthy Connecticut and Clean Water Action**

**Submitted to the CT General Assembly's Public Safety and Children's Committee, March 1, 2016
Testimony in support of HB 5404, An Act Concerning Toxic Flame Retardant Chemicals in
Children's Products and Furniture**

Dear Senator Larson, Representative Dargan and Honorable members of the Public Safety and Employees Committee,

My name is Susan Eastwood and I am a resident of Ashford and a parent of two grown children. I am the Director of Communications and Outreach for the Coalition for a Safe and Healthy Connecticut, a group of over 50 non-profits working to phase out toxic chemicals from everyday products.

Clean Water Action and the Coalition for a Safe and Healthy Connecticut **strongly support HB 5404, An Act Concerning Toxic Flame Retardant Chemicals in Children's Products and Furniture**. I commend the leadership of this Committee in their efforts to protect our most vulnerable from chemicals of high concern in items they are in contact with for many hours each day.

This bill would ban the manufacture or sale within Connecticut of any product marketed for the use of children twelve years of age or younger and upholstered residential furniture containing, in amounts 24 greater than .01 per cent by weight, the flame retardant chemicals decabromodiphenyl ether, hexabromocyclododecane, TDCPP, TDCP, TCEP and/or TCPP.

There are a number of chemicals of concern used as flame retardants in children's products, including those covered by this bill. Scientific studies linking one or more of these chemicals to serious disease are mounting up and pointing to serious health impacts from exposure at an early age including hormone disruption, toxicity to the developing nervous system, reproductive toxicity, and cancer.

- Chlorinated tris (TDCPP- tris(1,3-dichloro-2-propyl)phosphate) has been shown to change genetic material in fish¹. It is listed by the State of California as a known cancer-causing chemical², and associated with increased incidence of tumors in laboratory studies³.

¹ McGee, SP et al. 2012. Early zebrafish embryogenesis is susceptible to developmental TDCPP exposure. Environmental Health Perspectives 120(11):1585-1591.

² State of California Office of Environmental Health Hazard Assessment Proposition 65 List: Accessed at: http://oehha.ca.gov/prop65/prop65_list/Newlist.html.

- TDCPP was voluntarily removed from children's pajamas in the 1970's when it was found to be a probable human carcinogen. It has now shown up in many other products including nursing pillows, changing mattresses, and bassinets⁴. A 2011 Duke University peer-reviewed study detected TDCPP in 36% of 101 items tested, making it the most common flame retardant detected in baby products⁵.
- Both TDCP (tris(1,3-dichloro-2-propyl)phosphate) and TCEP (tris(2-chloroethyl) phosphate) have been shown to cause tumors in laboratory animal studies⁶. TCEP is linked to nervous system impairment including seizures, brain lesions, memory loss and learning problems⁷.
- TCPP (tris(1-chloro-2-propyl)phosphate) is chemically similar to other tris chemicals; it is a possible carcinogen, disrupts red blood cells, and irritates the skin⁸. TCPP is found in a range of baby products including changing pads, sleep positioners, nursing pillows, car seats, and portable mattresses⁹.
- HBCD (hexabromocyclododecane) is commonly used as a flame retardant in furniture upholstery and in polystyrene insulation foam. It is bioaccumulative, persistent, and toxic and shows up in household dust, indoor air, and food. It is also found in human blood serum, cord blood, and breast milk¹⁰.

³ Matthews, HB et al. 1993. Toxicity and carcinogenicity of chronic exposure to tris(2-chloroethyl)phosphate. *Fundamental and Applied Toxicology* 20:477-485

⁴ Erika Schreder, "Hidden Hazards in the Nursery", Washington Toxics Coalition/Safer States, January 2012.

<http://watoxics.org/files/hidden-hazards-in-the-nursery>

⁵ Stapleton, HM et al. 2011. Identification of flame retardants in polyurethane foam collected from baby products. *Environmental Science and Technology* 45:5323-5331.

⁶ United States National Toxicology Program. Toxicology and Carcinogenesis Studies of Tris(2-chloroethyl)phosphate (CAS No. 115-96-8) in F344/N Rats and B6C3F1 Mice (Gavage Studies)(Technical Report Series No. 391; NIH Publication No. 91-2846). 1991. United States Department of Health and Human Services.

⁷ Tilson H.A., Veronesi B., McLamb R.L. 1990. Acute Exposure to Tris(2-chloroethyl) phosphate Produces Hippocampal Neuronal Loss and Impairs Learning in Rats. *Toxicology and Applied Pharmacology* 106: 452-269.

⁸ Safe Kids Campaign Report of the Green Science Policy Institute 2011. Accessed at: <http://www.greensciencepolicy.org/wp-content/uploads/2013/12/Safe-Kids-Campaign-Report.pdf>.

⁹ Stapleton, H.M. et al. 2011. Identification of flame retardants in polyurethane foam collected from baby products. *Environmental Science and Technology* 45:5323-5331.

¹⁰ Risk Profile on Hexabromocyclododecane. The Stockholm Convention on Persistent Organic Pollutants Expert Review Committee (POPRC). POPRC.6/13/Add.2.

- HBCD has been shown to cause reproductive harm in Arctic birds at environmental levels, including egg shell thinning¹¹. Studies of mammals have shown reproductive, developmental, and behavioral effects with some of the effects being trans-generational¹².
- Deca-BDE (decabromodiphenyl ether) is a persistent and toxic chemical, and is one of the most prevalent of the brominated flame retardants in the global environment; detected in fish and wildlife as far afield as the Arctic¹³. Closer to home, it is found in children's toys, indoor air, and household dust¹⁴ as well as human blood serum, cord blood, placenta, and breast milk¹⁵.
- Health effects include endocrine disruption, particularly thyroid function; and adverse neurodevelopmental effects, including mental development and cognition¹⁶.

The Coalition for a Safe and Healthy CT participated in a national study which tested common items from the nursery for chlorinated tris. Of 20 items tested, 18 contained at least one form of tris, including the two items purchased in Connecticut¹⁷.

Another study showed the presence of these toxic flame retardants in nap mats! Of the 24 nap mats tested, 22 contained flame retardants and nine of those contained chlorinated Tris. The nap mat submitted from Connecticut tested the highest for levels of TCPP!¹⁸

High levels of flame retardants are added to polyurethane foam found in children's products and home furnishings. In the Hidden Hazards study the concentration of flame retardant was on average 3.9% of the entire weight of the foam! These chemicals off-gas and get into the air and house dust. Dust is known to be

¹¹ Fernie, K.J.; Shutt, J.L.; Letcher, R.J.; Ritchie, I.J.; Bird, D.M. 2009. Environmentally relevant concentrations of DE-71 and HBCD alter eggshell thickness and reproductive success of American kestrels. *Environ. Sci. Technol.* 2009, 43, 2124-30.

¹² Risk Profile on Hexabromocyclododecane. The Stockholm Convention on Persistent Organic Pollutants Expert Review Committee (POPRC). POPRC.6/13/Add.2.

¹³ De Wit CA, Herzke D, Vorkamp K. 2010. Brominated flame retardants in the Arctic environment — trends and new candidates. *Sci Total Environ* 408(15):2885-2918.

¹⁴ Chen S, Ma YJ, Wang J, Chen D, Luo XJ, Mai BX. 2009. Brominated flame retardants in children's toys: Concentration, composition, and children's exposure and risk assessment. *Environ Sci Technol*; 43:4200-4206.

¹⁵ Risk Profile on Deca-BDE. 2014. The Stockholm Convention on Persistent Organic Pollutants Expert Review Committee (POPRC). UNEP POPRC.10/3.

¹⁶ Risk Profile on Deca-BDE. 2014. The Stockholm Convention on Persistent Organic Pollutants Expert Review Committee (POPRC). UNEP POPRC.10/3.

¹⁷ Erika Schreder, "Hidden Hazards in the Nursery", Washington Toxics Coalition/Safer States, January 2012.

<http://watoxics.org/files/hidden-hazards-in-the-nursery>

¹⁸ Caroline Cox, "Naptime Nightmares? Toxic Flame Retardants in Child Care Nap Mats", Center for Environmental Health, February 2013. http://www.ceh.org/storage/documents/Flame_Retardants/nap_mat_report_2_19_2013.pdf



a major source of exposure to many flame retardants and young children have been found to have the highest levels. More than 96% of dust samples collected in the Boston area contained TDCP. TCEP has also been widely detected in our surface water, indoor air, and dust. And, in our children! Biomonitoring studies on children have shown extremely high levels of flame retardants¹⁹.

Certainly, the goal of fire prevention is a good one but it can be accomplished more effectively in other ways. Proven ways of reducing fire-related deaths include fire-safe cigarettes, sprinklers, smoke detectors and enforcement of building codes. Other flame retarding materials may be used in place of foam; wool is a natural flame retardant and is already used in baby products marketed as safer. There are other chemical flame retardants that are safer alternatives as well.

In fact, recent flammability tests have shown there is virtually no significant fire safety benefit to the use of these chemicals.²⁰ Since it is the foam and not the outer coating of fabric that is treated with these chemicals, the fabric in these products will ignite anyway. Once the fabric ignites, the large flames are not retarded by the presence of these toxic chemicals. Further, the chemicals released from the foam increase the toxicity of the smoke, putting residents and firefighters at increased risk.

In conclusion, we feel that this bill is an important step to protect our children, families and first responders from toxic flame retardants in children's products and upholstered furniture.

We urge your support of **HB 5404**.

Thank you.

Sincerely,

A handwritten signature in black ink that reads "Susan Eastwood".

Susan Eastwood
Clean Water Action
Coalition for a Safe and Healthy Connecticut

¹⁹ Tests reveal high chemical levels in kids' bodies - CNN - Planet in Peril <http://www.youtube.com/watch?v=pBXvJWWlgss>

²⁰ Shaw, S; Blum, A; Weber, R; Kurunthachalam, K; Rich, D; Lucas, D; Koshland, C; Dobraca, D; Hanson, S; Birnbaum; "Halogenated Flame Retardants: Do the Fire Safety Benefits Justify the Risks?" Reviews on Environmental Health Vol. 25, No. 4; (2010).